



## GATES ARE OPEN TO A DYNAMIC MARKET

The 15th edition of the Langkawi International Maritime Aerospace Exhibition (LIMA'19) is expected to put forward the latest innovations and technologies from the aerospace and maritime sectors both for military and civil applications.

A total of about 360 defence and commercial companies from over 30 nations are partaking. Turkey is by and large the largest international country pavilion followed by Russia, U.S. UK, China, France and Germany – a total of 12 country pavilions. Boustead Heavy Industry Corporation (BHIC) is the biggest Malaysian exhibitor followed by the National Aerospace and Defence Industri (NADI), Muhibah Engineering Berhad and Sapura Group.

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### FIGHT FOR MALAYSIA'S LCA PROGRAMME

After almost shelving its Multi-Role Combat Aircraft (MRCA) project, the Royal Malaysian Air Force (RMAF) is planning to buy single engine light combat aircraft. The country has reportedly issued requests for information (RFIs) to selected manufacturers for an undisclosed number of aircraft. RFIs have been issued to the Korea Aerospace Industries (KAI) FA-50,

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### TUNKU ABDUL RAHMAN TO GIVE UNDERWATER EDGE

The first Royal Malaysian Navy (RMN) Scorpene submarine KD Tunku Abdul Rahman will return to service mid-year, following the completion of an extensive in-country refit undertaken by Boustead Heavy Industries Corporation Berhad (BHIC).

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### RMN PLANS NEW BUYS

The Royal Malaysian Navy (RMN) is likely to issue a tender shortly for purchasing about 20 fast interceptor craft (FIC) as part of its effort to strengthen the maritime security. Several international and local shipbuilders will be showing keen interest in this programme.

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### RMAF KEEN ON SEAGUARDIAN

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# YAK-130

COMBAT TRAINER JET



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# LIMA 2019: BIGGER AND BETTER

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LIMA 2019 is also expected to focus on unmanned aerial vehicles (UAVs) and cyberwar elements which are now a priority in the defence sector.

Defence Minister Mohamad Sabu said new companies would be able to showcase their capabilities in these fields, since “Malaysia will also be enhancing its cyber defences and the use of UAVs as our security control at sea is quite wide, from the East coast (in the Peninsular) to Sabah and Sarawak and the waters of the South China Sea, as well as in the waters of the Straits of Melaka, are used by more than 100,000 ships each year.

Lima 2019 is expected to be officiated by Prime Minister Tun Dr Mahathir Mohamad himself, who is also a Member of Parliament from Langkawi.

The biennial exhibition, the brainchild of Dr Mahathir, was first held in 1991. ■

The new RMN chief Admiral Datuk Mohd Reza Mohd Sany said,

**“WE WOULD CONTINUE TO ENHANCE CAPABILITIES IN RELIEF OPERATIONS AND MOVING OF TROOPS AND EQUIPMENT...THIS RESTRUCTURING PLAN OF RMN WILL BE IMPROVED FROM TIME TO TIME ACCORDING TO SURROUNDING CONDITIONS.”**

In terms of modernizing the navy, the RMN is looking towards a “value-for-money” and “value added” procurements, which would enhance the capacity and capability of their assets and personnel. The “15-to-5 Fleet Transformation Programme” would be the pinnacle of transforming the RMN into a more effective and efficient organization. The transformation ‘15 to 5 ‘ programme is a fleet restructuring plan which sees reduction from 15 vessel classes to five classes.



This is to reduce dependence on external countries as well as enable better and efficient logistics management, while enhancing the local shipbuilding industry. According to Mohd Hafizzuddin Md Damiri of the Malaysian Institute of Defence and Security (MiDAS) the RMN is currently embarking to reduce the number of classes of ships in the inventory, through the “15-

to-5 Fleet Transformation Programme”2, which would reduce the operational costs and increase the efficiency in logistics management. “By having this completed, the RMN would be able to decommission its older vessels and off-set for the commission of new ships and latest naval technologies, in responding to the dynamic change in maritime security,” he said. ■

## RMN Looking At Value Added Buys





**OF THIS TASK BY BHIC IN MALAYSIA IS A COMMENDABLE ACHIEVEMENT, CONSIDERING THAT THE SCORPENES ARE THE FIRST EVER SUBMARINES TO BE OPERATED BY THE RMN. ENGINEERING AND OBSOLESCENCE MANAGEMENT FOR THE SUBMARINES IS BEING UNDERTAKEN BY BHIC, THOUGH NO MAJOR SYSTEMS WERE UPGRADED OVER THE COURSE OF THE REFIT.**

The refit takes 18 months and work on both submarines was contracted to BHIC at 1.8 billion MYR. The two submarines were delivered in January and October 2009 respectively, following the 2002 order.

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# TUNKU ABDUL RAHMAN TO GIVE UNDERWATER EDGE

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commenced its refit and is expected to re-join the Navy in 2020.

## THE REFIT FOR THE SCORPENE CLASS SUBMARINE IS UNDERTAKEN EVERY EIGHT YEARS AND THE COMPLETION

In November 2018, Tunku Abdul Rahman, for the first time joined a training exercise held in the East Coast of Sabah. The submarine, which is one of the two Scorpene-class vessels owned by RMN based in Kota Kinabalu, joined in the training with ships from Naval Region Two (Mawilla 2).

According to the RMN, the presence of the submarine has had a positive impact on the maritime community in eastern Sabah, especially in terms the confidence in RMN's credibility to safeguard the waters of the Eastern Sabah Security Zone which is vulnerable to threats such as cross-border and sea crimes.

In 2002, the Malaysian government purchased two Scorpene-class submarines from French warship builder DCN International SA for RM4.7 billion. French defence company Thales Group owns about a third of the company which is now operating under the name Naval Group. RMN's second submarine Tun Razak has



Under the terms of the original Scorpene submarine contract, BHIC was to complete the refit of both Scorpene submarines in Sepang Naval Base and ensure that the submarines are safe to dive after the refit. In addition to this BHIC provides the RMN with In-Service Support (ISS). The major aspect of the ISS package provided by BHIC is the Assisted Maintenance Period (AMP), Docking for Essential Defects (DED) and Continuous Corrective Maintenance during the operational period. Currently there are four customers for the Scorpene; India (6), Brazil (4), Malaysia (2) and Chile (2). ■



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## Fight For Malaysia's LCA Programme

Hindustan Aeronautics Ltd (HAL) Tejas and Sino-Pakistani JF-17. Leonardo is also understood to have received the RFI and will offer the M-346FA (Fighter Attack), while the Russian Yak-130 combat trainer has also entered the fray.

The Tejas and Yak-130 are both making their maiden LIMA appearances, while the others have chosen not bring their aircraft to the ongoing airshow. ■

# Flying in a changing sky



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# MBDA IS CONFIDENT OF ITS CHANCES IN MALAYSIA



European missile major MBDA, which has a long-standing presence in Malaysia, is displaying a wide variety of new generation weaponry, at the ongoing airshow, that it believes are a perfect fit for Malaysian requirements. While the Royal Malaysian Air Force (RMAF), presently does not operate any MBDA weapon system, the company has proposed a full suite of capabilities for the short-listed MRCA contenders, including; Meteor Beyond Visual Range Air-to-Air Missile (BVRAAM), Advanced Short Range Air-to-Air Missile (ASRAAM), Storm Shadow, Brimstone, Marte ER and SPEAR on Eurofighter Typhoon and; Meteor, MICA RF/IR, SCALP and Exocet for Rafale.

“With between 3 to 5 times larger “no-escape-zone” for threats than even the

newest versions of AMRAAM (US), only Meteor can counter the latest threats,” Tim Riddle, MBDA’s Vice President of Export in Asia, tells Daily News. “ASRAAM and Brimstone systems are also available to new hawk aircraft, if a combat role is required,” he adds. Brimstone has also been selected by the UK to arm their new Sky Guardian drones, so a fully integrated solution will soon become available.

**“WITH BETWEEN 3 TO 5 TIMES LARGER “NO-ESCAPE-ZONE” FOR THREATS THAN EVEN THE NEWEST VERSIONS OF AMRAAM (US), ONLY METEOR CAN COUNTER THE LATEST THREATS,”** Tim Riddle, MBDA’s Vice President of Export in Asia

MBDA is also offering its Sea Venom anti-ship missile to the Royal Malaysian

Navy (RMN) as a replacement for the Sea Skua anti-ship missile. In the Surface-to-Air Domain, MBDA’s VL MICA (selected for the RMN LCSs) and Sea Ceptor is being offered for the Lekiu Frigate Ship Life-Extension Programme (SLEP) as a replacement for the Vertical Launch Sea Wolf. The RMN already operates the Exocet on its Scorpene submarines, Frigates, Corvettes and missile boats. Ottomat and Aspide (latterly) are on the Laksamana Corvettes.

MBDA also supplied the Jernas Short Range Air Defense (SHORAD) system to the Malaysian Army and is currently assisting the service in extending the life of the in-service equipment and offering the Enhanced Modular Air Defence System (EMADS) as a potential replacement. The Army’s Paratroop Brigade has operated the MBDA Eryx anti-tank missile and the MMP 5th generation Anti-Tank Guided Missile (ATGM) is being touted as a potential replacement. ■



With the Royal Malaysian Air Force (RMAF) expressing an interest in the MQ-9B SeaGuardian and sending a Request for Information (RFI) to General Atomics Aeronautical Systems, Inc (GA-ASI), the California-based UAS manufacturer is focused on providing a 'system-of-systems' approach to the RMAF that is highly interoperable within the Malaysian Armed Forces and with key allies.

**“THE ISR OUTPUT FROM THE SEAGUARDIAN AIRCRAFT CAN BE READILY SHARED WITH ALL COMMON-PROTOCOL C4ISR SYSTEMS,” SAYS TERRY KRAFT, REGIONAL VICE PRESIDENT OF INTERNATIONAL STRATEGIC DEVELOPMENT FOR SOUTHEAST ASIA PACIFIC AT GENERAL ATOMICS AERONAUTICAL SYSTEMS, INC. (GA-ASI). “GA-ASI IS ALSO ABLE TO OFFER ITS SYSTEM FOR TACTICAL ANALYSIS, RETRIEVAL AND EXPLOITATION (STARE), WHICH WORKS IN CONJUNCTION WITH THE GROUND CONTROL STATION TO MAXIMIZE THE INTELLIGENCE VALUE OF INFORMATION TRANSMITTED FROM THE UAS.”**

A ground-up redesign of earlier variants, the MQ-9B – the SeaGuardian and the land-based SkyGuardian - are truly multi-mission aircraft and is the only UAS with the capability to operate in unsegregated airspace. The nine external hardpoints of the RPA enable it to be used for a wide variety of critical missions, including environmental protection, maritime domain awareness, search and rescue, as well as military surveillance patrol.

The SeaGuardian, which has SATCOM Auto Take-off and Landing system Capability (ATLC) that helps minimize the aircraft's launch and recovery footprint, also has 35+ hours endurance and in excess of 5400 NM range in full mission configuration to cover the entire expanse of Malaysia's territory. The RPA's sensors include a specialized long-range multi-mode maritime radar and EO/IR system. The aircraft also has anti-ice, de-ice and lightning protection capabilities to minimize lost sorties due to tropical weather. “SATCOM ATLC is a key feature that enables the aircraft to be operated unteth-



## GA-ASI SEAGUARDIAN THE RIGHT FIT FOR RMAF

ered from the Ground Control Station or by using a laptop computer, giving it virtually unlimited runways to take-off and land in Malaysia,” says Kraft.

The SeaGuardian has a fully certifiable design, including for the Ground Control Station. This, when combined with a Detect and Avoid (DAA) system, offers the potential to operate the MQ-9B in all classes or airspace.



According to GA-ASI officials, the SeaGuardian presents a far more cost-effective solution for the RMAF as its operating and support costs are a fraction of that of a manned maritime patrol aircraft (MPA). The RPA can also be used to complement a manned MPA, and will undertake the dull, dirty and dangerous roles, keeping aircrew away from risk, while the MPA is retained for focused tasks. Enhancing its appeal is the fact that the SeaGuardian also has the ability to seamlessly share information with other platforms, including the MPA. GA-ASI, a pioneer in SATCOM Beyond Line-of-Sight

(BLOS) operation for UAS, has 20 years of experience employing its UAS with the capability. According to Kraft, the flexibility of employment and range BLOS SATCOM provides will give Malaysia the ability to protect its vast territory while operating in a SATCOM environment.

It is not just Malaysia that is excited about the SeaGuardian's ability to provide persistent maritime ISR. Discussions between the U.S. and India on the potential sale of 22 SeaGuardian drones, which began in 2017, are in the final stages. The MQ-9B is the first remotely piloted aircraft (RPA) that is being developed to fly in civil airspace alongside manned aircraft and is much more than a strike drone, but those are not the only reasons why it has evoked great interest among militaries in the Asia Pacific and MENA regions.

“SeaGuardian has generated considerable interest with international customers; there are multiple nations in the Asia Pacific region that are seriously considering the RPA,” adds Kraft. “Many partner nations view the certifiability of the MQ-9B as the new benchmark for UAS systems.”

GA-ASI aircraft operate at more than 50 sites worldwide, including for many overseas customers. The company has produced over 850 UAS, and its aircraft have accumulated over 5.5 million flight hours. The company also has considerable experience in tailoring training, operations and support to meet overseas customer requirements. ■

# WORKING TOGETHER FOR THE SECURITY OF MALAYSIA



Italian defence conglomerate, Leonardo, which has a strong historical footprint in Malaysia in addition to many other partners in the region, is now aiming to further enhance its in-country presence. At the ongoing LIMA, the company is displaying rotorcraft types in addition to showcasing its capabilities in training, in airborne and maritime domain, going from space to underwater. Leonardo has been particularly successful with helicopter sales in Malaysia, which has one of the largest fleets of Leonardo helicopters in the region.

“We have a long standing relationship with the Malaysian Armed Forces and there are continuous talks to improve the current equipment and to provide brand new solutions. Leonardo has had a presence for many years on board the Royal Malaysian Navy (RMN) ships with the Super Lynx 300 (SL300) helicopters. It also has supplied AW109 twin-engine light helicopters to the Army. Leonardo’s contribution to Malaysia’s safety and security also includes battlespace systems for the Army, operational support for the Air Force and naval systems for the Royal Malaysian Navy. These include the Seaspray radar, 76/62mm guns and torpedoes,” a company spokesperson informs Daily News.

## Light Fighter Prospects

Company officials are bullish on the prospects of the M-346 for Malaysia’s future light fighter requirement,

**“WE HAVE AN EXCEPTIONAL SOLUTION FOR BOTH TRAINING AND LIGHT FIGHTER MISSIONS BASED ON THE M-346 SO WE ARE DEFINITELY INTERESTED IN THAT REQUIREMENT. THE VIRTUES OF THIS SOLUTION ARE CLEAR: WITH TWO VARIANTS OF THE SAME PLATFORM AN AIR FORCE CAN ENJOY THE MOST ADVANCED TRAINER AIRCRAFT AVAILABLE – ALSO AIDED BY OUR STATE OF THE ART GROUND BASED TRAINING SYSTEM – AND A MULTI-ROLE LIGHTWEIGHT FIGHTER, A LOW-COST TACTICAL SOLUTION,”** the official tells Daily News.

The M-346 has been exported to four customers, who have ordered 76 units so far.

## MPA and MALE UAV

Leonardo is offering the ATR 72MP as the perfect solution for RMAF’s maritime patrol requirements, which will require search and identification of surface vessels, C4ISR and SAR missions to name a few. Leonardo’s sophisticated ATOS mission system ensures superior performance in the maritime domain. A key consideration driving the purchase of military platforms

today are reliability, maintainability and low life-cycle costs; these are all delivered by the ATR 72MP, which is based on the highly successful civilian regional transport aircraft built by ATR. The RMAF is also the lead service with regards the acquisition and operation of MALE UAVs amongst the Malaysian armed forces.

“We are following closely all the requirements in Malaysia and we think that the Falco EVO – part of the wide Leonardo unmanned portfolio – can be an excellent solution,” the official adds. The Falco EVO is capable of remaining in the air for more than 20 hours while carrying a payload of up to 100 kg. More than 50 units of the Falco EVO and Falco, have been acquired by customers and are now in operational service.

## Modernisation

Leonardo is also prepared to address any future Malaysian helicopter upgrade requirements and RMN SL300s are approaching a significant milestone in terms of flight hours. A significant capability boost for Malaysian military rotorcraft can be provided merely with the addition of the Osprey AESA radar, which is the only radar of its type currently available to offer full spherical coverage with no moving parts. The company’s SAGE Electronic Surveillance Measure (ESM) has already been chosen for the Brazilian and South Korean navies’ Super Lynx 300 rotorcraft. ■



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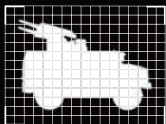
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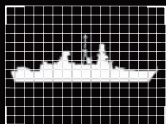
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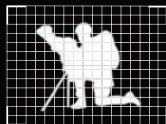
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# LIMA Debut for YAK-130



The Russian Yak-130 light fighter and advanced combat jet trainer is making its maiden appearance over the skies of Langkawi, marking the entrance of the Russian type for the light fighter requirement of the Royal Malaysian Air Force (RMAF).

The Yak-130 was designed primarily as a Lead-In Fighter Trainer (LIFT) for Russian fighter types such as the MiG-29 and Sukhoi SU-27/30 family and also fulfils a secondary combat role. Each flight hour in

the Yak-130, is several times less expensive than these multi-role fighters.

## Growing Orderbook

Irkut Corporation has now produced more than 160 Yak-130s, which are in operation in Russia (110), Algeria (16), Belarus (8), Bangladesh (16) and Myanmar (10) with the Republic of Laos becoming the latest operator of the type in January, with six out of the 10 aircraft on order, already being delivered. Irkut is continuing the enhance the capabilities of the aircraft and

is already testing a prototype aircraft that has been upgraded for the installation of a laser rangefinder.

## Combat Capable

In the combat role, the YAK-130 can carry 3 tonne of weapons on nine external weapons stations such as R-73E air-to-air missiles with IR homing head; KAB-500Kr smart bombs with TV sighting system; 50-, 100-, 250-, 500-kg aerial bombs; S-8, S-13, S-25 unguided air-to-ground rockets and an SNPU-130 pod carrying a GSh-23L gun with 120 rounds.

The combination of a helmet-mounted target designation system and R-73E missiles, allow engagement of aerial targets at ranges of up to 30 km. The nine external stations allow a variety of payloads such as weapons, drop tanks, electronic warfare pods, etc to be carried, depending on the mission profile. The Yak-130 has a combat range of greater than 600 km.

## Record Breaker

The airframer states that the Yak-130 is well suited for operators of the Su-30MKM/MKI/SM fighter aircraft, which are Malaysia, India, Algeria, Russia and Kazakhstan, respectively. In an effort to make the Yak-130 well suited for training 4+ and 5th-generation fighter pilots, a low thrust-to-weight ratio and less restrictive angle-of attack limitations, were major considerations.

**THE FLIGHT PERFORMANCE OF THE YAK-130 HAS BEEN CHARACTERISED AS 'EXCELLENT' BY ITS PILOTS AND 9 WORLD RECORDS HAVE BEEN SET BY THE AIRCRAFT IN CLASS C-1F (SERIAL GROUND-BASED TURBOJET AIRCRAFT WITH TAKEOFF WEIGHT FROM 6000 TO 9000 KG).**

Without external stores, the Yak-130 climbed to the altitudes of 6 km and 9 km in 102 and 164 seconds, respectively, breaking the records set by the U-2 spy plane. During the course of its record-breaking flights, the Yak-130 also broke a record set by the MiG-21.

Despite its record-breaking performance, the Yak-130 aircraft has been designed for deployment in austere conditions and unpaved airfields. The engine air intake doors close during taxi prevent ingress of foreign objects into the engines during takeoff and landing. ■



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# SOUTH EAST ASIA DEBUT FOR TEJAS

India's indigenously developed 'Tejas' (Radiance in Sanskrit) Light Combat Aircraft (LCA) is participating in the aerial displays at Langkawi, marking the regional show debut for the supersonic fighter jet. The Indian Air Force (IAF) is making its maiden appearance at the show, with two Tejas aircraft (LA 5009 & LA 5010) belonging to No.45 Squadron 'Flying Daggers' which is the first operational IAF Tejas fighter squadron.

The IAF presence at the ongoing airshow

is an opportunity for Royal Malaysian Air Force (RMAF) to assess the capabilities of LCA and will also serve as a foundation for any future interaction between the two air arms.

The IAF team departed from Air Force Station Kalaikunda before arriving at Langkawi on via Myanmar. The IAF contingent comprises of two Tejas fighters, one C-130J and one IL-76 MD, in addition to 27 officers, 42 airmen and 11 personnel from Hindustan Aeronautics Limited (HAL).



**“WE ARE HAPPY WITH THE TEJAS LCA AND IT IS ALREADY DISPLAYING HIGH SERVICEABILITY RATES AND PRECISION ATTACK CAPABILITY IN THE IAF,”**

Air Chief Marshal BS Dhanoa

The Tejas made its international show debut at the 2016 Bahrain International Air Show, where two aircraft made the first over-water journey of the Indian light fighter. The Tejas fighter aircraft at LIMA are Series Production (SP) aircraft and are of the Mk1 Initial Operational Clearance (IOC) variant.

These aircraft are fitted with a mechanically scanned Elbit Multi-Mode Radar (MMR) and DASH-IV Helmet Mounted Display and Sight (HMDS). “We are happy with the aircraft and it is already displaying high serviceability rates and precision attack capability in the IAF,” said Air Chief Marshal BS Dhanoa at the recently concluded Aero India. Indian pilots have acknowledged the flying qualities and handling characteristics of Tejas to be very good and superior to the Mirage 2000, which is also operated by the service.

However, the Tejas Mk1 will not be available for export as only approximately two dozen aircraft are left to be produced in the IOC and Final Operational Clearance (FOC) variants. The version of the light fighter that will be offered for export will be the Tejas Mk1A, for which the IAF will soon place orders for 83 aircraft (73 single seat & 20 twin seat). The Tejas Mk1A will be equipped with an Elta EL/M-2052 AESA radar, as compared to the mechanically scanned Elta EL/M-2032 radar on in-service Tejas Mk1s. Also planned on the Tejas Mk1A are MBDA ASRAAM missiles, indigenously developed ASTRA BVRAAMs, BrahMos-NG supersonic cruise missiles (two per aircraft), a pod mounted Self Protection Jammer (SPJ) and In-Flight Refuelling and the ability to undertake 'Hot Refuelling', where the aircraft can be refuelled with the engines running. This allows the sortie generation rate to be dramatically enhanced.

The Indian light fighter also features a very high percentage of Carbon Fibre Composite (CFC) materials, which make up approximately 45 percent of its airframe, including in the fuselage (doors and skins), wings (skin, spars and ribs), elevons, tailfin, rudder, air brakes and landing gear doors. Tejas Mk 1 and Mk1A fighter jets will be powered by GE F404-IN20 engines. ■



## Beyond the Standards with Its Cutting-Edge Technology

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## Dassault Aviation Displays Civil/Military Capability

French airframer Dassault Aviation is displaying its flagship Falcon 8X business jet in the static display area, at the ongoing LIMA, in addition to presenting the capabilities of the Falcon 2000 MRA,

for a Malaysian maritime patrol aircraft requirement. "We are offering a series of products and partnerships adapted to the geopolitical and economic environment of Malaysia. A dual civil/military company like Dassault Aviation enjoys the advantage of being able to take account of such a broad range of requirements with maximum synergy and efficiency," says Dassault Aviation CEO Eric Trappier.

The Falcon 2000 MRA is a multi-role version of the Falcon 2000 business jet caters to the demand of a turboprop pow-

ered special mission aircraft and in the maritime domain, it can undertake surveillance/reconnaissance missions, fighting pollution and trafficking, surveillance of borders and exclusion zones, search and rescue at sea, etc.

The Falcon 8X, which has a range of 11,945 km, builds on the popularity of the Falcon family and is well suited to the requirements of Malaysian companies. Dassault Aviation recently acquired the maintenance activities of ExecuJet, including infrastructure at Subang Airport, thereby reinforcing the Falcon after-sales support network in Southeast Asia.

Despite the Malaysian shift towards a light combat aircraft, instead of a heavier medium class fighter aircraft, the airframer is showcasing different configurations of the multi-role Rafale combat aircraft using new immersive virtual reality (VR) applications. Dassault had offered Malaysia, the Rafale in cooperation with several Malaysian industrial and institutional partners. The Rafale will be introduced into operational service in Asia by the Indian Air Force (IAF), which will receive its first aircraft in September. The Rafale is in the middle of an export resurgence with 96 aircraft ordered by the air forces of Egypt, Qatar and India. ■



# Turkish Bayraktar TB2 Completes Ukrainian Tests



The Ukrainian armed forces have completed in-country tests of the Bayraktar TB2 unmanned aerial vehicle (UAV). Over the course of the flight tests, the armed drone was able to detect and identify dif-

ferent types of targets, before transferring their coordinates to the command center, and then launching precision munitions at the target. The Bayraktar TB2 tactical, medium-sized, UAV can remain in the air

for more than 24 hours and fly up to an altitude of 24,000 feet. The armed drone is able to strike targets on land and at sea and is a significant upgrade to Ukrainian military capability.

Bayraktar TB2 operators can also track the enemy from long distances, thanks to the ultra-powerful optical station with a thermal imager, which provides accurate target coordinates in real-time. The Bayraktar TB2 carries "Neptune" and "Velyka" weapons from Ukraine, in addition to high precision weapons of its own. The UAV can also attain a maximum speed of 110 kmph and is also equipped with an automatic take-off and landing system. It can function as far away as 150 km from the ground station and has a 650-kg maximum take-off weight and a 55-kg payload capacity. The Bayraktar TB2 is in operational use by the Turkish Armed Forces. The Turkish military uses Roketsan's MAM, MAM-L smart munitions and UMTAS missiles on their Bayraktar TB2 armed drones. ■

# Chinese Frigate Yueyang Attends LIMA

The ongoing edition of LIMA, features 15 ships from thirteen countries and the People's Liberation Army (PLA) Navy Frigate Yueyang is part of the maritime fleet here that will take part in maritime displays, warship inspection and maritime exercise. Yueyang (Hull 575) is a Chinese

guided-missile frigate and set sail from a Chinese naval port in Sanya, in southern China's Hainan Province.

"Participating in this event will help strengthen exchanges with the navies of various countries, enhance friendship and mutual trust, and also display the good image of the People's Liberation Army (PLA) Navy as a peace-loving and civilized armed force," said Tang Yapeng, Commanding Officer of the Yueyang. The PLA Navy celebrates its 70th anniversary next month. ■



# Kazakh Order for C295

Airbus recently secured a firm order for one C295 medium transport aircraft from the Border Service of the Republic of Kazakhstan. The agreement also includes training, spares and ground support equipment. The aircraft has been ordered in transport configuration and will undertake border control activities and homeland security operations.

The new C295 has proven its reliability and cost efficiency while operating in low temperature regions.

This latest order will take the total fleet of C295s in Kazakhstan to nine aircraft. The Border Service of Kazakhstan is the 31st operator of the type, which has received orders for up to 13 aircraft in the CIS. ■



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## New Imaging System from AVT



Ascent Vision Technologies (AVT), specialists in high-performance imaging systems for air, ground and maritime domains, has launched a multi-spectral imaging system for maritime intelligence, surveillance and reconnaissance operations.

The new CM262 is a multi-intelligence, gyro-stabilized imaging system that combines the most advanced imagery and stabilization technologies in a sub 12kg, compact system. "The CM262 is ideal for border protection, littoral security, maritime patrols and SAR missions," says a company official.

Three sensor configurations (including HD daylight, HD Mid-Wave infrared and a laser range finder) enables maximum situational awareness and target acquisition at day and night. For long range target detection and identification, the CM262 offers 60x daylight and 20x MWIR continuous optical zoom.

Optimized for the ever-changing maritime environment, the CM262 delivers crisp and accurate imagery through sea glare, fog and smoke. Its superior video processor produces accurate, reliable and autonomous object tracking; improved on-the-move stabilization; and robust video content analytics. ■

# ASC, SCHNEIDER TIE UP FOR AUSTRALIA'S SUBMARINE PROGRAMME

Schneider Electric has entered into an agreement with Australia's sovereign submarine company, ASC, to support Collins Class submarine sustainment and plan for Australia's Future Submarine programme. Schneider Electric is an established supplier to ASC of major power switching and circuit breaker equipment for Australia's fleet of six Collins Class submarines.

The collaboration will help boost Australian industry's capability to deliver effective long-term support to the Collins Class as well as support for the Future Submarine Programme, expected to deliver the first Attack Class submarine in the mid-2030s. ASC Chief Executive Officer Stuart Whiley said the collaboration would improve obsolescence management of key electrical equipment for the Collins Class, to remain in service into the 2030s, as well as explore opportunities for innovation and growth in support of future programs.

"Schneider Electric in Australia is a trusted and reliable partner for ASC and the Collins Class program. This collaboration will lead to a closer relationship and better understanding so that we can meet the expected obsolescence management demands of coming years on the Collins Class platform," said Whiley.

As part of the collaboration, graduate engineers from Schneider Electric and ASC will spend time working in each company's



submarine-related operations, to foster understanding in support of submarine work in Australia and to further drive collaboration between the two organisations. Schneider Electric Graduate Engineer Nicole recently started at ASC's deep maintenance operations at the Osborne Naval Shipyard precinct in Adelaide.

"At Schneider Electric, we're encouraged to learn every day, and put our customers at the centre of our world. This experience gives me the opportunity to do both at once," said Nicole Tang, Schneider Electric Graduate Engineer, currently working within the ASC team.

The companies said the collaboration was aimed at achieving a future strategic support agreement between the two companies, strengthening long term planning and support of Collins Class sustainment and leveraging their expertise in support of allied segments, industries and future programs.

"It is through collaborations like this one, with Schneider Electric, that ASC will grow Australian industry's capacity to meet our sovereign submarine requirements in coming decades, across both Collins Class and Future Submarines," said Whiley. ■

## Singapore To Buy F-35

Singapore has finally decided to buy four F-35 Joint Strike Fighter (JSF) aircraft with options for eight more. The Republic of Singapore Air Force and the Defence Science and Technology Agency (DSTA) have decided that the air force should first purchase a small number of F-35 JSFs for a full evaluation of their capabilities and suitability before deciding on a full fleet, as the replacement for Singapore's ageing F-16 fighters.

Defence Minister Ng Eng Hen said the Ministry of Defence will issue a letter of request to the United States for an initial acquisition of four F-35s, with the option of a subsequent eight if Singapore decides to proceed. The US Congress must approve the sale of F-35s, Dr Ng said, adding that Singapore has the endorsement of both the US Administration and the Department of Defence for its proposed purchase. The current unit price of the F-35 ranges from US\$90 million (S\$121.7 million) to US\$115 million, which is comparable to what Singapore paid for its F-15SGs. It's not clear as to which version of the F-35 Singapore will be seeking from the U.S. However, reports quoting the minister has ruled out buying the "aircraft-carrier version" of the F-35.

Also from the unit price he mentioned, it could be the F-35A conventional-take-off-and-landing version and the F-35B short-takeoff-and-vertical-landing version under the latest LRIP 11 contract signed in September 2018 between the DoD and manufacturer Lockheed Martin.

The minister pointed out that the unit price of the F-35 JSF has been falling with "healthy" orders from the US and 10 other countries, including Britain, Italy, Japan and South Korea. The F-35 JSFs and upgraded F-15SG fighter jets will form the RSAF's line-up of fighter jets post-2030. ■





# New Searchlights for Military Rotorcraft



Spectrolab, Inc. a subsidiary of Boeing, which designs and manufactures high-intensity searchlights for military and commercial customers has developed two new searchlights for use on military rotorcraft, which are now available to the commercial market. The high-intensity LED searchlights have been named, Nightsun XPM and the SLL 46-200 and meet cur-

rent Military Specification (MIL-SPEC) guidelines for both the visible and infrared light spectrums.

“These are powerful examples of Spectrolab innovation in airborne lighting that often exceeds rigorous requirements in MIL-SPEC applications,” said Tony Mueller, president of Spectrolab. “As new

searchlight technology, they expand on our 50-year history of providing advanced lighting for rotorcraft platforms.

Testing of the NightsunXPM took place aboard a Boeing Chinook helicopter in late 2018. Both searchlight products use additive manufacturing for reduced part count and improved maintainability. ■

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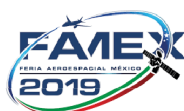


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# Roketsan Offers Smart Munitions for UAVs and Light Aircraft

ROKETSAN/GMD/PG/0

Turkish Missile specialist Roketsan is promoting its range of Smart Micro Guided Munitions (MAM-L & MAM-C) at the ongoing LIMA. Specifically designed for carriage on Unmanned Aerial Vehicles (UAVs) and light attack aircraft, Roketsan is offering the lightweight precision munitions to meet emerging Malaysian requirements for such weapons. "The design and application concept of the Smart Micro Guided Munitions provide their users with the capability of

effectively neutralizing time-critical targets, particularly those that arise during reconnaissance and surveillance missions. Meanwhile, thanks to their precision guidance and small dimensions, they offer a solution with a low collateral damage," Selçuk YAŞAR, President and CEO of Roketsan tells Daily News. "When compared with all the other capabilities of the armed forces, a combination of the Smart Micro Guided Munitions and a tactical UAV

is the most cost-effective solution. We believe that other countries will also start taking an interest in this solution soon." The Turkish armed forces, Gendarmerie Forces and General Directorate of Security are already using these new precision munitions on their BAYRAKTAR Tactical UAVs and ANKA MALE UAVs. The weapons have already been used in various operations and have proven themselves in field operations. Deliveries are expected to commence this year, for export customers of the MAM-L & MAM-C. Roketsan can operationalize the munitions by completing all the related integration work, as long as the air platforms have the required infrastructure and the company also provides integration support as well as logistics support and training.

The MAM-L weighs 21.5 kg and carries a High Explosive (HE) fragmentation warhead, for use against light structures, unarmored ground vehicles, radar antennas and soft targets such as weapon pits and personnel. An anti-tank warhead and thermobaric option is also available. The range of MAM-L can be extended from 8km to 14 km through an optional Inertial Navigation System (INS) or Global Positioning System (GPS). The MAM-C weighs a mere 6.5 kg and has an effective range of up to 8 km, (depending on the release altitude). ■



# Airbus Displays Aviation Prowess

European airframer Airbus considers Malaysia as a strategic market and is showcasing its range of offerings being used by the Malaysian military in addition to commercial aircraft operated by Malaysian carrier Air Asia. Malaysia customers have placed orders with Airbus for more than 700 commercial airliners and over 100 helicopters, and Airbus also supplied Malaysia's largest communications satellite - MEASAT-3b.

The airframer is showcasing scale models of the new A330neo jetliner, the C295 maritime patrol aircraft, the Zephyr solar-powered unmanned aerial system, as well as helicopters such as the H175 and ACH160. Airbus' static display comprises of an Air Asia A320neo and A400M heavy lifter and CN235 medium aircraft belonging to the Royal Malaysian Air Force (RMAF). A H145 helicopter in emergency medical services (EMS) configuration is also on display.

Airbus Helicopter has had significant successes in Malaysia with the H225M operated by the RMAF, AS555SN Fennec with the Malaysian Navy and AS365 Dauphin operated by the country's maritime enforcement agency. Company officials will make presentations on the H145M helicopter fitted with the HForce weapons system. ■

# RMAF Hawks Complete 25

The Royal Malaysian Air Force (RMAF) recently completed 25 years of operations with its fleet of Hawk 208s and Hawk 108s, which were acquired starting 1994. Manufactured by BAE Systems, the RMAF went to acquire a total of 18 Hawk 208s (single seat) and 10 Hawk 108 (twin-seat) from 1994 onwards, to meet its requirements for a light attack aircraft and an advanced jet trainer, respectively. The RMAF inducted the aircraft into three squadrons (No. 6, No. 9 and No.15) at the rate of two aircraft each month, starting first deliveries in April 1994.

**“THE HAWK IS STILL CAPABLE OF DELIVERING AND REMAINING RELEVANT. WE ARE PLANNING TO USE IT FOR 10 MORE YEARS AND THERE WILL BE UPGRADES”** RMAF Chief General Tan Sri Affendi Buang.

The decision to operate the type for another decade, will mean that the RMAF will move forward on a planned upgrade for its Hawk 208s with upgrades to its Electronic Warfare (EW) and counter-measure systems, refurbishment of its APG-66H radar and display units as well as a new Mission Planning System. As per current plans, once the upgrade effort is formalised and contracted for, the first upgrade aircraft will be delivered in 15 months. The upgrade work will be performed by AIROD Sdn Bhd who are the MRO provider for Hawk in Malaysia, and the Malaysian Ministry of Defence. The RMAF is conducting flying displays with its Hawk aircraft, at the ongoing airshow. ■



## 558 ARP Eyes Malaysian Market



Belarus based 558 Aviation Repair Plant (558 ARP), has emerged as a preferred partner for overhaul, repair and modernization of various types of aviation materiel Su-22, Su-25, Su-27, Su-30, MiG-29, An-2 and Mi-8 (Mi-17), Mi-24 (Mi-35). The company is a regular participant at LIMA and is showcasing its ability to perform in-depth modernization of MiG-29, Su-27 and Su-25 aircraft at the ongoing airshow. Company officials tell Daily News that they are confident of increasing the quantum of work from Malaysia and can undertake measures to modify platforms to increase their reliability. 558 ARP can also perform weapon and systems upgrades that increase the combat effectiveness of airborne platforms against ground, sea and

aerial targets.

At the ongoing airshow, 558 ARP is presenting, an eight-seater amphibious aircraft fitted with a gyro-stabilized visual overview search system. The platform can patrol and track remote areas, marine search operations, and allows round-the-clock search of objects, detection and recognition of targets, use of unguided weapons and aircraft weapons in all weather conditions.

The company is also showcasing its new autonomous Electric Warfare (EW) system called “Satellite”, which can jam enemy transmissions without pilot intervention. This system can be installed on military and civilian aircraft made in Russia or elsewhere. ■





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